trunnions B' B^2, which are capable of revolving in pedestal bearings C' C^2. Attached to the internal periphery of the cylinder is a series of short, curved shelves *D D D*, arranged either in horizontal or diagonal rows at equal distances. A six row of curved shelves is replaced by a line of small square plates *H H H* which, by means of nuts outside the cylinder, can be set at an angle with the axis of the apparatus. By regulating the inclination of these plates, the shower of iron can be directed back to the inlet end of the purifier, and the tendency of the flow of water to carry forward the purifying material counteracted. Inlet and outlet pipes, *E* and *F*, enter the hollow trunnions and admit and discharge the water to be purified. As the water enters the cylinder it strikes against the circular distributing-plate *G*, and is caused to flow radially through an annular space five-eighths inch or three-fourths inch in width, the formation of a central current along the axis of the purifier being prevented by this means. The inner end of the outlet pipe carries an inverted bell-mouth *K*, which catches the fine particles of the iron carried forward by the water, and causes them to fall again to the bottom of the cylinder. One end of the cylinder is encircled by an annular spur-wheel *I*, worked into gearing through which a slow rotary motion is given to the apparatus. On being started to work, sufficient metallic iron to fill one-tenth of the cylinder is introduced through the manhole, the iron being in a suitable state of subdivision. The purifier is then filled with water through the sluice-cock *L*, the air-cock *M* being left open to allow the cylinder to fill completely. The apparatus is then set in motion, the rate of rotation being about six feet per minute at the periphery. The effect of the rotation is to scoop up the iron particles and to shower them down through the flowing water.

When designing the original spongy iron filters, at Antwerp, the calculations of their size and capacity were based upon the opinion that, in order to obtain the best results, a